



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,601	05/17/2006	Hans Boffo	GRIMM 236-KFM	4759
10037	7590	06/03/2011	EXAMINER	
ECKERT SEAMANS CHERIN & MELLOTT, LLC			RODRIGUEZ, JOSEPH C	
U.S. STEEL TOWER			ART UNIT	PAPER NUMBER
600 GRANT STREET				3653
PITTSBURGH, PA 15219-2788				
MAIL DATE		DELIVERY MODE		
06/03/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/579,601	BOFFO ET AL.
	Examiner JOSEPH C. RODRIGUEZ	Art Unit 3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)

Paper No(s)/Mail Date ____
- 4) Interview Summary (PTO-413)

Paper No(s)/Mail Date ____
- 5) Notice of Informal Patent Application
- 6) Other: ____

Final Rejection

Applicant's arguments filed 3/18/2011 have been fully considered but they are not persuasive for reasons detailed below.

The 35 U.S.C. 112 rejections are maintained or modified as follows:

These rejections have been withdrawn.

The prior art rejections are maintained or modified as follows:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12, 15-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers (US 2,541,937) in view of Rahimi et al. ("Rahimi") (US 5,621,591) and design choice.

Powers (Fig. 1-6) teaches a device for sorting different materials, comprising a conveyor belt and at least one sensor which is assigned to the conveyor belt and senses pieces of material in a location-dependent manner on the conveyor belt, and at least one actuator which sorts out pieces of material in accordance with signals of the at

least one sensor in a location-dependent manner (col. 1, ln. 1-23), the improvement comprising

at least one electromagnetic actuator having at least one energizable coil (13) rotatably suspended about a shaft (11), which performs a rotational movement starting from a basic, first position in a gap between a pair of first magnets (top coil rings 7 shown in fig. 2 formed as ring segments with an inner radius and outer radius having their origins at the shaft with said coil held on a base plate) to a second position in a gap between a pair of second magnets (bottom coils 7 with fig. 2 showing rotational movement), wherein the energizable coil, which is biased in the first position, is acted upon with a current pulse (col. 7, ln. 68-71 teaching) and, due to the differently oriented magnetic fields of the pairs of the first and second magnets, it performs the rotational movement about the shaft, so that the rotational movement of the coil effects an actuating operation for sorting out a piece of material (col. 2 teaching sorting of objects via electromagnetic actuator),

wherein the actuator further includes an ejector, operatively coupled to move with the energizable coil, to eject pieces of material when the energizable coil effects an actuating operation (Fig. 1, 5, 6 and col. 5, ln. 34+ teaching ejector element 45 that is coupled to said coil to sort objects).

Powers as set forth above thus teaches all that is claimed except for expressly teaching a more specific design of the electromagnetic actuator, such as said pulse being positive and the magnets being permanent made of neodymium-iron boron, wherein windings of the coil extend in planes which are positioned substantially

perpendicular to the shaft and comprise two legs which are radially oriented relative to the shaft and held on a carrier which is suspended from the shaft, the end of the carrier opposite to the coil forming an adjusting member. These design features, however, are well known in the electromagnetic actuator arts. For instance, Rahimi teaches an electromagnetic actuator as claimed (see figures 7-9 teaching multiple pairs of permanent magnets and carrier for multiple coils near 39; col. 6 teaching variety of coil and magnet placements) for the purpose of quick and accurate movement with low power consumption (col. 1, ln. 27+). It would thus be obvious to one with ordinary skill in the art to modify the base reference with these prior art teachings to arrive at the claimed invention. The rationale for this obviousness determination can be found in the prior art itself as cited above. Further, the modification to arrive at the claimed invention would merely involve the substitution/ addition of well-known elements (i.e., electromagnetic actuators) with no change in their respective functions. Moreover, the use of prior art elements according to their known functions is a predictable variation that would yield predictable results, and thus cannot be regarded as a non-obvious modification when the modification is already commonly implemented in the prior art. Further, the claimed features of the type of magnet, bias and pulse and magnet and coil placement can be regarded as a mere design choice controlled by the design incentives and/or economic considerations involved in this type of subject matter. This is especially applicable in the electromagnetic actuator arts as the type of movement and torque requirements can control variations in the specific device dimensions, features and/or feature placement. Moreover, these variations are predictable to one of ordinary

skill in the art as demonstrated by Rahimi above. See MPEP 2143. Further, the prior art discussed and cited demonstrates the level of sophistication of one with ordinary skill in the art and that these modifications would be well within this skill level. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Powers for the reasons set forth above.

Claims 13, 14 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powers (US 2,541,937) in view of Rahimi et al. ("Rahimi") (US 5,621,591) and design choice as applied to the claims above, and further in view of Boyer et al. ("Boyer") (US 6,119,667) and Carlow (US 4,561,545) and what is well known in the art.

Powers et al. as set forth above teach all that is claimed except for expressly teaching a plurality of actuators are arranged side by side to form a modular unit with shafts positioned in a straight line, wherein said coil is supplied with current by means of silicone-coated stranded wires. These features, however, are well-known in electromagnetic actuator and sorting arts. For instance, Boyer teaches that it is well known to coat wire with silicone to improve its insulation (col. 3 teaching use of silicone wire involved with magnetic flux). Carlow (Fig. 2) teaches a plurality of actuators arranged as claimed that provides the benefit of an array of deflectors that can be adapted to sort objects of various sizes (col. 1). It would thus be obvious to one with ordinary skill in the art to modify the base reference with these prior art teachings to arrive at the claimed invention. The rationale for this obviousness determination can be

found in the prior art itself as cited above. Further, the prior art discussed and cited demonstrates the level of sophistication of one with ordinary skill in the art and that these modifications would be well within this skill level. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Powers et al. for the reasons set forth above.

Response to Arguments

Applicant's arguments that the prior art fails to teach the amended claimed features are unpersuasive in view of the rejection as set forth above. Indeed, Applicant has not amended the claim language sufficiently to avoid the cited prior art. Further, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Here, the field of Applicant's endeavor is electromagnetic actuators, thus the cited prior art is certainly analogous. Applicant appears to have narrowly defined the relevant area of focus, but it appears entirely reasonable that one seeking to improve an electromagnetic actuator would not limit themselves to those actuators only related to sorting devices. Consequently, as Applicant's arguments are unpersuasive, the claims stand rejected.

Here, it is noted that as claim 27 has been cancelled, dependent claim 28 has also been regarded as cancelled.

Examiner has maintained the prior art rejections, statutory rejections and drawing objections as previously stated and as modified above. Applicant's amendment necessitated any new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any references not explicitly discussed above but made of record are considered relevant to the prosecution of the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Joseph C Rodriguez** whose telephone number is **571-272-3692** (M-F, 9 am – 6 pm, EST). The Supervisory Examiner is Stefanos Karmis,

571-272-6744. The **Official** fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

The examiner's **UNOFFICIAL Personal fax number** is **571-273-3692**.

Further, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private PMR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see
<http://pair-direct.uspto.gov>

Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at **866-217-9197** (Toll Free).

/JOSEPH C RODRIGUEZ/
Primary Examiner, Art Unit 3653

Jcr

June 2, 2011